INSTITUTION OF CIVIL ENGINEERS.

ADDRESS OF THE PRESIDENT TO THE ANNUAL GENERAL MEETING—JANUARY, 1844.

The time has again arrived when I, with the other members of Council, have to surrender my trust into your hands, and to thank you for the manner in which you have, by your attendances and otherwise, supported me during the year.

I have to congratulate you on the accession to our ranks of several members, at the head of whom stands the name of the most exalted subject in these realms, the only honorary member elected during the last session; one who is not more distinguished by his rank than he is by his virtues, and by the manner in which he discharges the various duties which his high station has assigned to him. Our honorary member, Prince Albert, appears to possess extraordinary moral power, to have been enabled to steer a straight course without attaching himself to any political party, and yet attaching all parties to him. Not a whisper has, I believe, been uttered to his prejudice; and the way in which he is respected and beloved by all ranks proves that the love and attachment of the inhabitants of this country may be easily gained by those in exalted stations, when they really deserve it. That the Prince should encourage and countenance the sciences and arts, which have been mainly instrumental in raising this country to its present position, was to be expected from his taste and judgment; and, as it is probable this was his motive for acceding to our wishes and becoming a member, he has conferred a high compliment upon the Institution, which was enhanced by his honouring us with his company at the conversazione last year at my house.

The election of the Duke of Buccleuch, Hon. M. Inst. C.E., took place during the session of 1842. His Grace's splendid present, named in the Report of the Council, has been made during the last session. It is valuable, as proving the estimation in which his Grace holds this Institution, with the character of which he is so well acquainted. The same inference may be drawn from the present made by Mons. Legrand, our honorary member, as announced in the Report.

All those who knew the Institution in 1834-5 must remember the efficient and zealous offices of Captain Stoddart, who discharged, gratuitously, the duties of secretary for one session, and are probably aware that the same individual is the Colonel Stoddart whose sufferings at Bokhara have excited the sympathies of Europe, and to which we, who are his friends, and have profited by his exertions, cannot be indifferent. Dr. Woolf has been sent out by the united exertions of a few noblemen and gentlemen to ascertain whether Colonel Stoddart be yet living; and if so, to endeavour to rescue him. I felt it my duty to attend the public meeting, and to add my name to the list of subscribers. Captain Grover, the zealous chairman of the committee, has been in communication with the secretary of this Institution, and by applying to him, gentlemen desirous of subscribing to the expense of the mission have the opportunity of doing so. The last news respecting Colonel Stoddart strengthen the hope of his being still alive; and should he return to England, we may easily imagine his pleasure at finding that the members of a society for which he laboured actively, though but for a short period, had taken such an interest in his fate. The last letter I received from him was dated from Teheran, in 1837; the following extract from it may be found interesting:—

"The Schah takes a great interest in the Artesian wells; I brought out drawings of the tools, which I handed over to an engineer officer from Bengal serving here; the tools have been made very well, and the pipes are about to be made. Private individuals are also extremely anxious for the result of the first experiment, as, wherever water can be obtained, the soil becomes fertile, and the revenue accruing to its proprietor is proportionably increased.

"Ten miners, to work the iron-mines of Kuradagh, are also come from England, but they are not yet paid their expenses out; and I fear, though iron is plentiful, and the price of it in the Tabuez market would be clearly reduced to one-third of the present rate, that [illegible] oblige the miners to retire, at a loss to themselves, from the undertaking. This is the only engineering news in the country."

The original communications that have been received are fewer than might have been expected, considering how many are due, the number of individuals who are unemployed, and the frequent applications and earnest representations that have been made.

Want of energy to make the trial, joined to the fear that it would be unsuccessful, is perhaps the principal operating cause of this, particularly with the graduates and young engineers, who thus allow their faculties to rust. If desirous of being employed upon a public work, or in an office, the applicant states that he can draw, measure, plan, and in fact do almost anything; he has been probably articled to an engineer, and although two years may have elapsed since his pupilage expired, and he may not have had any employment, and although he has been some years a graduate, it too frequently happens that he has not sent in a paper, nor a description of any work; his excuse is, "that he was not sure what would be acceptable," or he had "thought of and commenced several subjects, none of which pleased him;" and it appears at last that he has not only never sent any paper to the Institution, but he has nothing of his own drawing or writing to shew. Such want of energy is more apt to cause sorrow than anger, but frequently gives rise to both. Let such individuals learn the effect of a contrary conduct from the experience of those who have usefully employed their minds, redeemed their engagement, and brought themselves into notice by drawings and papers presented to the Institution.

I am aware that all essayists, from Johnson downwards, have experienced and complained of the difficulty of choosing a subject. The printed list of subjects for Telford and Walker premiums is intended to aid in this choice; but if it is found deficient, I am sure that any further assistance will be given on application to our secretary.

There are many works either executed or in progress, in this country, of which the detail of the success, or still more of the failures (for the history of these points out the best way to avoid them), would be very important to have recorded, and there are plenty of young men, unfortunately not much occupied, who would benefit themselves, as well as the institution, by describing them; but yet the duty is omitted. Measuring and planning executed works, is the lesson next in point of importance to actually constructing them, for acquiring correct knowledge. As drawing from the living subject is the best study for the young artist, so inspection of works in progress and the practice of drawing and describing them correctly, is one of the most useful employments for the young engineer. By describing, I mean specifying and reporting at length on the nature, component parts, and quality of the work; which most essential part of an engineer's employment is, however, too frequently overlooked and undervalued by the younger members of the profession. If they consider what is necessary to enable them to direct the construction of works, they will perceive that the most correct drawing is but one of the means employed. The facility of describing, in language, a work and its various processes, is with some persons more difficult than the drawing; but it is essential to be learned, if the student in engineering ever looks forward, as he ought, to the higher grades of employment in the profession. The number of their future employers who can understand and appreciate drawings, however explanatory and detailed, they will find to be much less than of those who can comprehend a well-written description or report.

Let it not be understood, however, that I would recommend the study of the works of others exclusively, or even principally, after a certain degree of progress and experience. This is an error to be carefully guarded against, as in most cases mental rest is more agreeable than mental exertion. The effect of beginning by consulting authorities, and seeing what others have done, when a subject is proposed, is, by falling into their track we are contented to remain in it. The question whether there is another way probably never presents itself to us. If, instead of this the first call were [illegible] construction, we should probably find our labours rewarded beyond our previous expectations, by the satisfaction of seeing that the result of our thoughts had some sanction from authorities; or even where differences existed, or errors were apparent, we should better feel our own inferiority, as well as the nature of the error, and perceive therefore how they were in future to be avoided. If we would walk alone through the world, we should begin soon to avoid dependence upon the support of others. In what I have said, however, I would by no means countenance that professional confidence which is above being controlled and corrected by experience, which none of us are too old to learn from. The designing which is the result of our own mental exertion, and to which I have referred, is not to go far beyond the study or the confidential friend until it has been matured, compared with, and corrected, by what has been recommended and done by others.

I have been led into these remarks by an anxious desire that the Institution should contain good accounts of executed works, that members of all classes should profit by the production of them, and that while they discharge their obligation, they should enable the Council to withdraw their names from the list of defaulters, which it must be the duty of the Council soon to lay before the meeting; and if what I have said shall tend to reduce the list, my object will have been attained.

To this short address, I hope I may be permitted to add my congratulations on the continued and accelerated march of civil engineering in this country. The practice of using steam expansively, first, I believe, explained by Watt, but for prudential reasons not much used by him, when there was so much to introduce; this and other contrivances have tended, and are daily tending, to reduce the cost of steam power, and to increase the general utility of the steam-engine. For the two new purposes to which this wonderful machine has been applied within a quarter of a century, viz. travelling by land and by water, it has so triumphed beyond all calculation, that it is difficult to set reasonable bounds that it may not pass.

In 1825 the speed of steam-boats was estimated at from six to eight miles per hour; had an opinion then been given that within twenty years the speed would be more than doubled, notwithstanding the rapid ratio of increase of the resistance of the water, it would have been received as at least wild and improbable.

The increased velocity of the locomotive engine, not having the same law of resistance to keep it in check, has been still greater. The rate which was assumed in the reports for the Liverpool and Manchester Railway in the year 1825, was twelve miles per hour, the speed which has lately been calculated by me for the travelling of the Irish mails between London and Holyhead is thirty-six miles per hour; and, I believe, the present companies make no objection to it. It would not be just towards our former member Mr. Clegg, to omit stating that the Atmospheric Railway patentees, Messrs. Clegg and Samuda, consider my calculation for the lower portion of the line (Chester to Holyhead) as too low, if their system be adopted. You are probably aware that two miles of Atmospheric Railway are laid down between Kingstown and Dalkey (Dublin), through the exertions of our zealous and enterprising associate Mr. Pim, and that carriages with loads of passengers are carried upon it daily, although it is not yet opened to the public. Having had occasion lately to visit Kingstown professionally, I witnessed with pleasure the performance of this ingenious invention; and without prognosticating as to the future, I may state that the results of the experiments are much superior to those with locomotive engines, at a corresponding early period of their introduction upon railways.

The interest of this session is likely to be increased by communications on the subject of the working of the Atmospheric Railway; which, whatever the ultimate results or extent of its application may be, cannot fail to be interesting to the philosopher and the engineer, as a new application of the wonderful laws of nature to the use of man.

The duties of the Publication-committee, and the reasons for the restriction of their [illegible] been noticed in the report of the